

Addition/Amendment to the Drawings

The attached sheet of drawings includes The Figure

DESCRIBE CHANGE: The Figure shows a disclosed method of initiating occupant assisted measures inside a vehicle.

Attachment: Replacement Sheet

REMARKS

Applicants thank the Examiner for the very thorough consideration given the present application.

Claims 1-12 are now present in this application. Claim 1 is independent.

By this Amendment, claims 1, 3, 7 and 9 have been amended. No new matter is involved. Support for the amendment to claim 1 is found throughout Applicant's originally filed disclosure including, for example, in the last ten lines of page 3, and all of pages 4 and 5. Reconsideration of this application, as amended, is respectfully requested.

Priority Under 35 U.S.C. § 119

Applicants thank the Examiner for acknowledging Applicants' claim for foreign priority under 35 U.S.C. § 119, and receipt of the certified priority document.

Information Disclosure Citation

Applicants thank the Examiner for considering the reference supplied with the Information Disclosure Statement filed on September 19, 2005, and for providing Applicants with an initialed copy of the PTO/SB/08 form filed therewith.

Objection to the Drawings

The Office Action indicates that this application admits of a drawing and that Applicants are required to furnish a drawing. Applicants respectfully traverse this requirement.

MPEP §608.02(d), which explains the application of 37 CFR §1.83(a)–(c), states that any structural detail that is of sufficient importance to be described should be shown in the drawings, citing *Ex parte Good*, 1911 C.D. 43, 739 (Com'r Pat. 1911).

Unfortunately, the Office Action does not identify any structural details of the claimed invention which admit of a drawing, leaving Applicants to speculate as to what structural features are supposed to be illustrated in a drawing. Moreover, Applicants' claims are method claims and do not recite a product or an apparatus, so Applicants do not understand what structural details are supposed to be shown in a drawing.

Nevertheless, in an attempt to be fully responsive to this objection, Applicants are enclosing a new drawing sheet with a drawing. No structural details are shown. However, method steps are shown, because that is what is claimed.

Accordingly, reconsideration and withdrawal of this objection are respectfully requested.

Specification Objection

The Examiner has objected to the specification for not providing proper antecedent basis for the subject matter of claims 5-9. In order to overcome this objection, Applicants have amended the main body of the specification to include the subject matter recited in claims 5-9. No new matter is involved because claims 5-9 are originally filed claims and, therefore, are part of Applicants' original disclosure. It is well settled that the claims as filed are part of the specification, and may provide or contribute to compliance with Section 112. See *Northern Telecom, Inc. v. Datapoint Corp.*, 908 F.2d 931, 938, 15 USPQ2d 1321, 1326 (Fed. Cir. 1990) (the

original claims are part of the patent specification); *In re Benno*, 768 F.2d 1340, 1346, 226 USPQ 683, 686-87 (Fed. Cir. 1985); *In re Frey*, 166 F.2d 572, 575, 77 USPQ 116, 119 (CCPA 1948), cited in *Hyatt v. Boone*, 47 USPQ2d 1128, 1130 (Fed. Cir. 1998).

Reconsideration and withdrawal of this objection are respectfully requested.

Rejection Under 35 U.S.C. § 112, 1st Paragraph

Claims 1-12 stand rejected under 35 USC §112, first paragraph, as failing to comply with the enablement requirement. This rejection is respectfully traversed.

Initially, Applicant respectfully submits that the Office Action does not make out a *prima facie* case of lack of enablement of the invention recited in claims 1-12

An analysis of whether the claims under appeal are supported by an enabling disclosure requires a determination of whether that disclosure contained sufficient information regarding the subject matter of the appealed claims so as to enable one skilled in the pertinent art to make and use the claimed invention. The test for enablement is whether one skilled in the art could make and use the claimed invention from the disclosure coupled with information known in the art without undue experimentation. See *United States v. Teletronics, Inc.*, 857 F.2d 778, 785, 8 USPQ2d 1217, 1223 (Fed. Cir. 1988), *cert. denied*, 109 S.Ct. 19 54 (1989); *In re Stephens*, 529 F.2d 1343, 1345, 188 USPQ 659, 661 (CCPA 1976). As framed by our reviewing court, the dispositive issue with regard to the first paragraph rejection is whether the disclosure is sufficient to enable one of ordinary skill in the art to practice the claimed invention. See *Lindemann Maschinenfabrik GMBH v. American Hoist & Derrick Co.*, 730 F.2d 1452, 1463, 221 USPQ 481,

489 (Fed. Cir. 1984).

In order to make a rejection, the Examiner has the initial burden to establish a reasonable basis to question the enablement provided for the claimed invention. *See In re Wright*, 999 F.2d 1557, 1561-2, 27 USPQ2d 1510, 1513 (Fed. Cir. 1993) (Examiner must provide a reasonable explanation as to why the scope of protection provided by a claim is not adequately enabled by the disclosure). A disclosure which contains a teaching of the manner and process of making and using an invention in terms which correspond in scope to those used in describing and defining the subject matter sought to be patented must be taken as being in compliance with the enablement requirement of 35 USC 112, first paragraph unless there is a reason for doubting the objective truths of the statements contained in the disclosure which must be relied on for enabling support. Assuming that sufficient reason for such doubt exists, a rejection for failure to teach how to make or use will be proper on that basis. *See In re Marzocchi*, 439 F.2d 220, 223, 169 USPQ 367, 369 (CCPA 1971).

Once the Examiner has established a reasonable basis to question the enablement provided for the claimed invention, the burden falls on the Applicant to present persuasive arguments, supported by suitable proofs where necessary, that one skilled in the art would be able to make and use the claimed invention using the disclosure as a guide. *See In re Brandstadter*, 484 F.2d 1395, 1406, 179 USPQ 286, 294 (CCPA 1973). In making the determination of enablement, the Examiner shall consider the original disclosure and all evidence in the record, weighing evidence that supports enablement [the appellant may attempt to overcome the Examiner's doubt about enablement by pointing to details in the disclosure but may not add new

matter. The appellant may also submit factual affidavits under 37 CFR 1.132 or cite references to show what one skilled in the art knew at the time of filing the application against evidence that the specification is not enabling.

Thus, the dispositive issue is whether the Applicant's disclosure, considering the level of skill in the art as of the date of the appellant's application, would have enabled a person of such skill to make and use the claimed invention without undue experimentation. The threshold step in resolving this issue is to determine whether the Examiner has met his burden of proof by advancing acceptable reasoning inconsistent with enablement.

Factors to be considered by an Examiner in determining whether a disclosure would require undue experimentation include (1) the quantity of experimentation necessary, (2) the amount of guidance or direction presented, (3) the presence or absence of working examples, (4) the nature of the invention, (5) the state of the prior art, (6) the relative skill of those in the art, (7) the predictability or unpredictability of the art, and (8) the breadth of the claims. *See In re Wands*, 858 F.2d 731, 737, 8 USPQ2d 1400, 1404 (Fed. Cir. 1988), citing *Ex parte Formal*, 230 USPQ 546, 547 (Bd. Pat. App. & Int. 1986).

The Examiner does not address all of the Wands factors. Instead, the Examiner speculates about just a few of those factors. For example, the Office Action speculates concerning the second Wands factor, i.e., amount of guidance or direction presented. The Office Action concludes that Applicant does not supply direction as to what is being measured and how.

Applicant respectfully disagrees with this speculative conclusion for a number of reasons.

Firstly, it is well settled that a rejection may not be based on speculation but must be based

on objective factual evidence of record. See *In re Warner*, 379 F.2d 1011, 1017, 154 USPQ 173, 178 (CCPA 1967), *cert. denied*, 389 U.S. 1057 (1968). See also *In re GPAC Inc.*, 35 USPQ2d 1116 at 1123 (Fed. Cir. 1995) and *Ex parte Haymond*, 41 USPQ2d 1217 at 1220 (Bd. Pat. App. & Int. 1996).

Secondly, Applicant's originally filed disclosure describes detecting the motor reaction intentions of the driver with high time resolution in the millisecond range as *non-averaged individual results* and thereby analyzing them *in dependence on the currently varying perceptual context* (multimodal environment information as well as instrument signals). Applicant's original disclosure teaches that this is accomplished by extraction of EEG correlatives - identifiable as individual events – of intention generation and specific motion preparations can serve as a *novel input value for concepts of accident-preventive safety*, e.g., in automobiles, for the purposes of motor-powered safety belt tightening, seat optimization or optimization of the vehicle reactivity in order to prepare a braking/steering operation.

This feature clearly describes that those brain signals are used which describe the very early stage of a building process for a motor intention and preparation of movement of the occupant. It is important to point out that the invention is not based on the determination of a mental will, but is related to the use of evaluation of motor intentions and movement preparations of a human at as very first stage of the generation of the motor intention, which still happens in the human subconscious. The extraction of the necessary information from brain current signals is possible as, for example, described in paragraph 1 on page 4 and paragraphs 2a and 2c on pages 4 and 5 of the application documents, as originally filed.

According to the invention, it is possible to perform a driver-based verification of recognition of a danger by detection of a congruent motor intention generation of the driver, and a situation modeling which is validated correspondingly. The potential danger may be detected additionally by device means, e.g., visually by a corresponding sensor system. The detection of a motor intention generation of a vehicle occupant, e.g., a driver, will then serve as a further input value and as an indicator to the effect that a measure has to be taken on the vehicle (validated situation modeling). The corresponding motor intentions, such as these can be quite early extracted from the brain-current signal, can thus be utilized for the purpose of a pre-optimizing of the vehicle dynamics.

Thirdly, the measurement of these signals is known in the art, as exemplified by the references found in paragraph 25 of the Application.

The Office Action then speculates that the level of predictability in the art is not high. No objective factual evidence is presented to support his speculative conclusion, whereas Applicants respectfully submit that detection and evaluation of cerebral currents is well known and well established in the art. In this regard, Applicants enclose a published fourteen page article by Kohlmorgen, et al., which refers to many well known reference papers that evidence the state of the art.

The paper is entitled "Improving Human Performance in a Real Operating Environment through Real-Time Mental Workload Detection," and reference to many scholarly publications which disclose the state of the art is found in the Introduction of this article.

Moreover, this invention does not involve chemical reactions, but electrical signals in a

technology that has been developed for decades. EEG technology is not new and the results of EEG tests have helped the medical profession for decades. Therefore, working examples are not needed, as they might be in art that involves chemical reactions.

The Office Action then refers to two sentences in the Application and speculates, with absolutely no objective factual evidence in support thereof, that neither of those two statements is sufficient for one of ordinary skill in the art to discern an occupant's intention with respect to driving a vehicle without undue (sic:undue) experimentation.

Applicants respectfully disagree with this speculation for the reasons presented above, and note that the Office Action completely fails to address a very important *Wands* factor, namely, the level of skill of one of ordinary skill in the art. Applicants respectfully submit that one of ordinary skill in the art has advanced degrees in medical electronics and years of experience, which will qualify them to fully carry out the claimed invention without undue experimentation.

With respect to claim 12, which recites initiating the measures on the basis of an averaging of the intentions of a plurality of vehicle occupants, Applicants respectfully submit that involves nothing more than averaging the detected brain current signals of more than one vehicle occupant to serve as the basis for initiating occupant-assisted measures. In this regard, Applicants respectfully submit that signal averaging techniques are well known in the art.

To the extent that the papers in paragraph 25 of the Application are not incorporated by reference, Applicants respectfully submit that those papers, and the papers referenced in the enclosed article mentioned above, establish what is known by one of ordinary skill in the art, and

evidence the level of one of ordinary skill in the art, and that the disclosure of this Application is directed to such a person for determining whether the invention is enabled. Applicants respectfully submit that they do not need to incorporate anything else into this Application to make the disclosure of the claimed invention enabling, but that as it was filed, this Application contains an enabling disclosure of the claimed invention.

Accordingly, the Office Action fails to make out a *prima facie* case of lack of enablement of the claimed invention, and this rejection should be withdrawn.

Claims 8 and 9 stand rejected under 35 USC §112, first paragraph, for lack of enablement.

This rejection is, respectfully traversed.

Applicants respectfully submit that the Office Action is improperly mistaking breadth of the claims for lack of enablement. In this regard, reference is made to the decision in *In re Ehrreich and Avery*, 200 USPQ 504 (CCPA 1979, which clearly states, as a matter of law, that 35 USC §112 does not permit the Examiner to study applicant's disclosure, formulate a conclusion as to what the Examiner regards as the broadest invention supported by the disclosure, and then determine whether the claims are broader than the Examiner's conception of what the invention is. Unfortunately, that is exactly what has occurred in this rejection.

Further in this regard, Appellants refer the Examiner to the general principle of patent law holding in *In re Smythe and Shamos*, 178 USPQ 279 (CCPA 1973), that claims may be drafted as broadly as the prior art allows and mere omission of claim limitations does not suggest omission

of steps or parts.

Applicants also respectfully submit that this is a mechanical/electrical art Application, not an Application that involves unpredictable chemical reactions, so the disclosure is commensurate in scope with the claims.

Rejection Under 35 U.S.C. § 112, 2nd Paragraph

Claims 3 and 9 stand rejected under 35 U.S.C. § 112, 2nd Paragraph. This rejection is respectfully traversed.

The Examiner has set forth instance in each of claims 3 and 9 wherein the claim language is unclear.

In order to overcome this rejection, Applicants have amended claim 3 and 9 to correct each of the deficiencies specifically pointed out by the Examiner. Applicants respectfully submit that the claims, as amended, particularly point out and distinctly claim the subject matter which Applicants regard as the invention. Accordingly, reconsideration and withdrawal of this rejection are respectfully requested.

Applicants have also amended claim 7 to make it more fully comply with 35 USC §112, second paragraph. None of these amendments narrows the scope of the claims.

Rejections under 35 U.S.C. §103

Claims 1-6 and 8-10 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent 6,349,231 to Musha in view of U.S. Patent 6,293,361 to Mueller. This rejection is

respectfully traversed.

A complete discussion of the Examiner's rejection is set forth in the Office Action, and is not being repeated here.

Because the rejection is based on 35 U.S.C. §103, what is in issue in such a rejection is "the invention as a whole, "not just a few features of the claimed invention. Under 35 U.S.C. §103, " [a] patent may not be obtained . . . if the differences between the subject matter sought to be patented and the prior art are such that the subject matter *as a whole* would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains." The determination under §103 is whether the claimed invention *as a whole* would have been obvious to a person of ordinary skill in the art at the time the invention was made. *See In re O'Farrell*, 853 F.2d 894, 902, 7 USPQ2d 1673, 1680 (Fed. Cir. 1988). In determining obviousness, the invention must be considered as a whole and the claims must be considered in their entirety. *See Medtronic, Inc. v. Cardiac Pacemakers, Inc.*, 721 F.2d 1563, 1567, 220 USPQ 97, 101 (Fed. Cir. 1983).

In rejecting claims under 35 U.S.C. §103, it is incumbent on the Examiner to establish a factual basis to support the legal conclusion of obviousness. *See In re Fine*, 837 F.2d 1071, 1073, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988). In so doing, the Examiner is expected to make the factual determinations set forth in *Graham v John Deere Co.*, 383 U.S. 1, 17, 148 USPQ 459, 467 (1966), and to provide a reason why one of ordinary skill in the pertinent art would have been led to modify the prior art or to combine prior art references to arrive at the claimed invention. Such reason must stem from some teaching, suggestion or implication in the prior art

as a whole or knowledge generally available to one having ordinary skill in the art. *Uniroyal Inc. v. F-Wiley Corp.*, 837 F.2d 1044, 1051, 5 USPQ2d 1434, 1438 (Fed. Cir. 1988), *cert. denied*, 488 U.S. 825 (1988); *Ashland Oil, Inc. v Delta Resins & Refractories, Inc.*, 776 F.2d 281, 293, 227 USPQ 657, 664 (Fed. Cir. 1985), *cert. denied*, 475 U.S. 1017 (1986); *ACS Hospital Systems, Inc. v Montefiore Hospital*, 732 F.2d 1572, 1577, 221 USPQ 929, 933 (Fed. Cir. 1984). These showings by the Examiner are an essential part of complying with the burden of presenting a *prima facie* case of obviousness. *Note, In re Oetiker*, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992). The mere fact that the prior art may be modified in the manner suggested by the Examiner does not make the modification obvious unless the prior art suggested the desirability of the modification. *In re Fritch*, 972 F.2d 1260, 1266, 23 USPQ2d 1780, 1783 84 (Fed. Cir. 1992). To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be suggested or taught by the prior art. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1970). All words in a claim must be considered in judging the patentability of that claim against the prior art. *In re Wilson*, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970).

A suggestion, teaching, or motivation to combine the prior art references is an "essential evidentiary component of an obviousness holding." *C.R. Bard, Inc. v. M3 Sys. Inc.*, 157 F.3d 1340, 1352, 48 USPQ2d 1225, 1232 (Fed. Cir. 1998). This showing must be clear and particular, and broad conclusory statements about the teaching of multiple references, standing alone, are not "evidence." *See In re Dembiczak*, 175 F.3d 994 at 1000, 50 USPQ2d 1614 at 1617 (Fed. Cir. 1999).

Moreover, it is well settled that the Office must provide objective evidence of the basis used in a prior art rejection. A factual inquiry whether to modify a reference must be based on objective evidence of record, not merely conclusory statements of the Examiner. *See In re Lee*, 277 F.3d 1338, 1343, 61 USPQ2d 1430, 1433 (Fed. Cir. 2002).

Furthermore, during patent examination, the PTO bears the initial burden of presenting a *prima facie* case of unpatentability. *In re Oetiker*, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992); *In re Piasecki*, 745 F.2d 1468, 1472, 223 USPQ 785788 (Fed. Cir. 1984). If the PTO fails to meet this burden, then the Applicants are entitled to the patent. Only when a *prima facie* case is made, the burden shifts to the Applicants to come forward to rebut such a case.

Applicants respectfully submit that neither Musha nor Mueller disclose the claimed feature that the generation of motor intentions and preparations of movements of an occupant of the vehicle are detected by extraction of correlates from the brain current signal which are identifiable as individual results.

Musha discloses controlling a process by detecting the intention of a person, as described in Document D1, as referenced in this Application, with regard to a wheelchair which is steered in dependence on the decision-making of the person sitting in the wheelchair. Thus, what is required to steer Musha's wheelchair is the conscious generation of a reflected intention of a person. However, this does not involve extraction of information from a brain current signal that indicates generation of motor intentions and preparations of movements of the wheelchair occupant. Applicants' claimed invention, as amended, recites that the generation of motor intentions and preparations of movements of the occupant of the vehicle are detected by

extraction of correlates from the brain current signal which are identifiable as individual results which reside in the subconscious, because it is reflex-controlled, i.e., reflex control of intentional movements of the body of body parts. This primary information on the generation of motor intentions and particularly on motor intentions of a vehicle occupant, e.g., a driver, is used to prepare a vehicle to an imminent danger situation in an accident preventive manner.

The claimed invention uses correlates of a brain-current signal which describe the earliest phase of the generation of an intention, the process being based on generation of motor intentions. However, in Musha, the person in the wheelchair has to (mentally) form a wish (as explained in the "detailed Description of the Invention" in cols. 2 and 3 of Document D1) which, on the one hand has to be preformed consciously, and on the other hand, will be finished at a much later time than provided by the claimed invention (wherein the generation of an intention, still proceeding in the subconscious mind, is detected).

Further, the wish provided according to Musha does not involve motor intentions. This is evident from Musha's descriptive examples of the steering of a wheelchair. The occupant of wheelchair has restricted movement capabilities and, in a most severe case, no movement at all, so that motor intentions and their generations are not contemplated by Musha.

Mueller discloses a process/system for breaking a vehicle in which changes of bodily reactions pointing to an emergency or stress situations are sensed by means of sensors. Mueller requires sensing of bodily reactions, such as, for example, sudden perspiration, to initiate an automatic braking operation. In contrast thereto, in the claimed invention, motor intentions are sensed based on brain waves.

Accordingly no matter how these two references are combined, because neither reference discloses positively recited claimed features, they cannot possibly result in, suggest, or otherwise render obvious, the claimed invention.

Thus, reconsideration and withdrawal of this rejection of claims 1-6 and 8-10 are respectfully requested.

Claim 7 stands rejected under 35 USC §103(a) as being unpatentable over Musha in view of Mueller and further in view of U.S. Patent Application Publication 2002/0077534 to DuRousseau. This rejection is respectfully traversed.

The Musha-Mueller reference combination fails to render obvious the subject matter of claim 1, from which claim 7 depends, for reasons stated above. Furthermore, DuRousseau is not applied to remedy the aforementioned shortcomings of the Mush-Mueller reference combination. So, even if one of ordinary skill in the art were properly motivated to modify the Musha-Mueller reference combination in view of DuRousseau, as suggested, the resulting modified version of Musha would not disclose, suggest, or otherwise render obvious the claimed invention.

Furthermore, DuRousseau describes a method and system for initiating activity based on sensed electrophysiological data. However, DuRousseau does not develop an approach for a physiology-driven specific preprocessing and merely states that brain waves are analyzed without disclosing how this should be realized based on the psycho-physiological aspect.

Accordingly, this rejection fails to make out a *prima facie* case of unpatentability of the claimed invention, and this rejection of claim 7 should be withdrawn.

Claim 11 stands rejected under 35 USC §103(a) as being unpatentable over Musha in view of Mueller and further in view of U.S. Patent 5,311,877 to Kishi. This rejection is respectfully traversed.

The Musha-Mueller reference combination fails to render obvious the subject matter of claim 1, from which claim 7 depends, for reasons stated above. Furthermore, Kishi is not applied to remedy the aforementioned shortcomings of the Musha-Mueller reference combination. So, even if one of ordinary skill in the art were properly motivated to modify the Musha-Mueller reference combination in view of Kishi, as suggested, the resulting modified version of Musha would not disclose, suggest, or otherwise render obvious the claimed invention.

Additionally, Kishi's waking degree maintenance apparatus does not provide any interaction with a vehicle, but merely estimates a waking degree of a person on the basis of correlation between brain waves and the reaction time, or between the blinking frequency and the reaction time. Thus, Kishi has no proper evidentiary basis for motivating one of ordinary skill in the art to modify the base reference combination to arrive at, suggest, or otherwise render obvious the claimed invention.

Accordingly, this rejection fails to make out a *prima facie* case of unpatentability of the claimed invention, and this rejection of claim 11 should be withdrawn.

Additional Cited References

Because the remaining references cited by the Examiner have not been utilized to reject the claims, but have merely been cited to show the state of the art, no comment need be made with respect thereto.

Conclusion

All of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicants therefore respectfully request that the Examiner reconsider all presently outstanding rejections and that they be withdrawn. It is believed that a full and complete response has been made to the outstanding Office Action, and as such, the present application is in condition for allowance.

If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone Robert J. Webster, Registration No. 46, 472, at (703) 205-8000, in the Washington, D.C. area.

Prompt and favorable consideration of this Amendment is respectfully requested.

Applicants respectfully petition under the provisions of 37 C.F.R. § 1.136(a) and § 1.17 for a three-month(s) extension of time in which to respond to the Examiner's Office Action. The Extension of Time Fee in the amount of **\$1,050.00** is attached hereto.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Date: June 30, 2008

Respectfully submitted,

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Attachments: Replacement Drawing Sheets

Kohlmorgen et al., "Improving Human Performance in a Real Operating Environment through Real-Time Mental Workload Detection," in "Toward Brain-Computer Interfacing" MIT Press, Cambridge MA, (2007), pp. 409-422.